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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

STEPHEN B. AUGER

Serial No.: 08/865,419

Art Unit: 1751

Filed: May 28, 1997

Examiner: M. Einsmann

For: MINERAL STAINS FOR WOOD AND OTHER SUBSTRATES

LETTER

To the Commissioner of Patents and Trademarks

Sir:

In response to the Communication mailed December 21, 2001, kindly enter the attached substitute Appeal Brief, provided in triplicate. A fee has already been paid.

Respectfully,

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**APPEAL BRIEF**

To the Commissioner of Patents and Trademarks

Sir:

**REAL PARTY IN INTEREST**

The above-identified Applicant is the real party in interest in this case.

**RELATED APPEALS AND INTERFERENCES**

No other related Appeals and Interferences are pending.

**STATUS OF CLAIMS**

Claims 1-10, 20-22, and 30-36 were finally rejected over the art of record.

Claims 23, 25, 26, and 29, which were withdrawn from consideration have been cancelled.

Claims 11-19, 24, 27, and 28 have also been cancelled.

A copy of the appealed claims is appended hereto in the Appendix. Applicant believes that the claims appended to this Appeal Brief are the claims of record in Applicant's file.

### **STATUS OF AMENDMENTS**

No amendments were filed after the final rejection.

### **SUMMARY OF THE INVENTION**

The invention (Specification pages 8-17) is a two-step process involving a non-toxic, water-based mineral solution and a low toxicity water-based oxidizing solution applied sequentially to unfinished wood products (page 8, lines 18-20). The process may be adapted for the coloring and finishing of woodlike products such as bamboo or rattan, paper, recycled cellulose products, cotton and other cloths, leather, certain porous plastics, tile, cement, and other masonry, and other substrate substances (specification page 8, lines 20-23).

The user first brushes, sprays, or otherwise applies a water-based solution "A" onto a wood or other product, lets the product dry for about 5-30 minutes, depending on temperature and humidity, then applies a second water-based solution "B" (page 8, lines 24-26). Color change begins immediately and when the B solution dries, in another approximately 5-30 minutes, the product is permanently stained (page 8, lines 26-28). The solutions may also be applied by soaking the substrate in the solution, at standard temperature and pressure or at either extreme or combinations as with typical pressure treatments for lumber to ensure thorough penetration of thicker substrates (page 9, lines 1-2).

The A solutions contain a variety of mineral salts (such as a variant of the iron-rich compounds found in nutritional supplements) and other natural compounds that soak into the wood surface readily (page 9, lines 16-18). The B solutions contain an oxidizing agent, such as dilute peroxides similar to the hydrogen peroxide found in many medicine cabinets (page 9, lines 18-20). Preferred B solutions are somewhat more concentrated (page 9, line 20).

The oxygen source causes an oxidation reaction, bonding the minerals in solution A to or among the cellulose fibers in the wood, or other matrix material of a substrate, a process referred to here as "crosslinking" (page 9, lines 22-24). The chemical nature of the crosslinking reaction is suggested by the fact that a color change results from the combination of solution A, solution B,

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and the substrate (page 9, lines 24-26). The resulting color, unlike the clear solutions and their components, is not water-soluble (page 9, lines 26-27).

The process involves saturating the fibers of a wood or other product matrix with a solution of minerals in a water-soluble form and then oxidizing said minerals in the fibers or matrix to change the color, texture, and general appearance of the wood or other properties (page 10, lines 3-5). The coloring process renders mineral salts into a stable, insoluble form, perhaps an oxide, coordination compound, or other water-insoluble compound or complex, referred to here as a cross linked compound (page 10, lines 6-8).

The metal salt formulation soaks into the substrate, impregnating it with mineral ions, which are then converted by the oxygen source into an insoluble coloring compound (page 10, lines 9-10). Thus, a metal oxide may serve as a metal salt if it is solubilized with an acid, applied so as to penetrate into a substrate, and then reacted with an appropriate oxygen source to generate the desired color or other effect (page 10, lines 10-13).

The coloring agent may associate physically or chemically with the substrate, via absorption, mechanical admixture, entrapment, polar attraction, or covalent bonding (page 10, lines 19-21). With cellulosic and leather products, the reaction may involve the cellulose or collagen matrix of the substrate article (page 10, lines 21-24). With masonry, the substrate may or may not react with the metal salt and oxygen source, so long as the colored compound is fixed insolubly within the substrate (page 10, lines 24-26).

In some cases, the B solution is applied before the A solution in order to obtain a different effect (page 11, lines 9-10). Different mineral solutions and different oxidizing agents create markedly different effects on wood, and these finishes can be customized for specific application to a wide variety of materials (page 11, lines 10-12).

The invention relates to compositions and kits comprising the various A and B solutions prepared by combining water soluble or other mineral salts, oxidizing agents, and other substances into an aqueous solution (page 11, lines 13-15).

To form the various preparations of Solution A, a measured weight of the mineral or minerals is mixed in a volume of purified water (page 12, lines 24-25). To form the iterations of Solution B, liquid hydrogen peroxide or powdered sodium peroxide are mixed in a volume of water (page 12, lines 25-27). Alternatively, sodium hydroxide is added to a hydrogen peroxide solution and may be neutralized or buffered if desired (page 12, lines 27-28).

Mineral salts and oxides have been used according to the invention to stain wood (page 14, lines 6-7). Other minerals capable of reacting with an oxygen source in contact with a substrate to color the substrate or provide other effects according to the invention may be selected from salts of elements of columns 2 through 6 of the Periodic Table of the Elements, including the transition elements, Lanthanides, and Actinides (page 14, lines 17-20).

The effect may vary with the source of water (page 15, line 21). The effect may vary with the solution in which the minerals or peroxides are dissolved or suspended (page 15, lines 25-26).

The effect may vary with the concentrations of the solutions (page 16, line 4). Generally, more dilute solutions create lighter color density but in some cases they actually give the appearance of a different color (page 16, lines 4-6).

In all the examples defined in the specification (pages 18-21), Solution A is made up as a solution of mineral in water. Concentrations are given as percent (weight/volume), or the number of grams of mineral and the volume of water is given (page 17, lines 18-20). Solution B is made up of a 15% (v/v) solution hydrogen peroxide or a 0.3% sodium peroxide solution (made from 3.0 grams per liter of water) (page 17, lines 20-21).

### **ISSUES**

Whether claims 1 and 31 are patentable under 35 U.S.C. 112, second paragraph?

Whether claim 1 is patentable under 35 U.S.C. 102(b) over Matsushita (JP 60-250,906)?

Whether claims 3-7, 9-10 and 30-36 are patentable under 35 U.S.C. 102(b) over Brown (U.S. patent 5,173,085)?

Whether claims 3-10 and 30-36 are patentable under 35 U.S.C. 102(b) over Tennigkeit (U.S. patent 4,992,077)?

Whether claims 1, 3-6, 9-10, 30, and 32-36 are patentable under 35 U.S.C. 102(b) over Light (SU 499,297)?

Whether claims 3-7, 30, 31, and 36 are patentable under 35 U.S.C. 102(b) over Yantai (Yantai University 86-104,010)?

Whether claims 2-8, 9-10, 20-22, 30-34, and 36, are patentable under 35 U.S.C. 102(b) over Dombay (U.S. patent 3,554,785)?

Whether claims 2-10, 20, 21, 30, 31, and 36 are patentable under 35 U.S.C. 102(b) over Bures (CS 145,495)?

Whether claims 2-8, 9-10, 20-22, and 30-36, are patentable under 35 U.S.C. 103(a) over Dombay (U.S. patent 3,554,785)?

Whether claims 2-10, 20-22, 30-36 are patentable under 35 U.S.C. 103(a) over Bures (CS 145,495)?

### **GROUPING OF CLAIMS**

The claims do not stand or fall together.

### **ARGUMENTS**

The Examiner has failed to meet the burden required by MPEP 2183. Under 2183, after concluding, with proper evidence, that the claimed limitation is met by prior art element, the examiner must show that the prior art element is equivalent and must also demonstrate why it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute applicant's described structure, material, or acts for that described in the prior art reference. This is what is required to shift the burden to applicant to show that the element shown

in the prior art is not an equivalent of the structure, material or acts disclosed in the application.

MPEP 2183. The Examiner in this case has not met the burden required by MPEP 2183.

Reversal of the Examiner and allowance of all the claims are respectfully requested.

Claims 1 and 31 are patentable under 35 U.S.C. 112, second paragraph.

The last five lines of claim 1 simply define the function of the components of the kit. Therefore, the Examiner's statement that "it is improper to recite method steps in a kit claim" is not understood. Besides, that recitation cannot, and does not, form any basis for the Examiner's rejection of the claim being "indefinite." Contrarily, the last five lines of claim 1 render claim 1 definite than otherwise. Thus, the rejection of claim 1 should be reversed.

Claim 31 does not reference any "base." Applicant had deleted the term "base" in a Response filed April 28, 2000. In fact, the Examiner acknowledged in a subsequent office action (paper # 31, page 2) that applicant had proposed that amendment (among others) to incorrect line numbers, and that the Examiner had entered the proposed amendments to the correct lines, which included line 8 of claim 31 which had recited the term "base". Reversal of this rejection is also respectfully requested.

The present claims are patentable under 35 U.S.C. 102(b).

For an invention to be anticipated, it must be demonstrated that each and every element of the claimed invention is present in the "four corners" of a single prior art, either expressly described therein or under the principle of inherency. Lewmar Marine Inc. v Barient Inc., 3 USPQ2d 1766, 1767-1768 (CAFC, 1987).

Each of the present claims is patentable over the art of record.

The invention uniquely provides permanent wood staining without use of hazardous or environmentally unfriendly chemicals, which is new and unobvious. The invention has two parts, and the staining is accomplished in two steps. The first part is an aqueous solution of metal salts,

which is applied to the wood and which penetrates the surface of the wood. The second solution is an aqueous oxidizer solution which penetrates the wood and fixes the metal salts in place within the wood.

The Examiner contends in paper # 36, page 2, Item 6b, that Applicant has failed to separately argue the patentability of each of the claims, other than pointing out the differences between the claims and the references. However, the final rejection of the claims merely references the previous office action (paper # 31) as the basis for the rejections. A review of the final office action (paper # 36) and of its basis (paper # 31) clearly indicates that the Examiner has failed to meet the original burden of presenting a prima facie case of anticipation by the references. Neither office action points out where in the references there is a description, teaching or inherent presence of each of the claimed features of each of the appealed claims. Since the patent office has not met its burden, it would be mere speculation, and an undue burden, on Applicant's part to point out the basis for each of the claimed features in the references of record that may have been in the mind of the Examiner but not reflected in any office action.

Attention is kindly drawn to the Federal Circuit's dictum:

**The examiner cannot sit mum, leaving the applicant to shoot arrows into the dark hoping to somehow hit a secret objection harbored by the examiner. The 'prima facie case' notion ... was intended to leave no doubt among examiners that they must state clearly and specifically any objections (the prima facie case) to patentability, and give the applicant fair opportunity to meet those objections ... the concept serves to level the playing field and reduces the likelihood of administrative arbitrariness.**

In re Oetiker, 25 USPQ2d 1443, 1447 (Fed. Cir. 1992) (Plager, J., concurring); see In re Piasecki, 233, USPQ 785, 788 (Fed. Cir. 1984) (emphasis added).

Claim 1 is patentable under 35 U.S.C. 102(b) over Matsushita

Claim 1 describes a kit for imparting a pre-determined color to a solid wood substrate, comprising an aqueous solution of a first compound consisting of a mineral salt and water as a first application on the solid wood substrate, and a second component comprising an aqueous



solution of a peroxide as a sequential application on the solid wood substrate, the mineral salt and peroxide solutions as sequential applications in effective amounts on the substrate and colored layer on the substrate formed by the applications reacting with each other in the presence of the substrate to impart the color to the substrate.

Matsushita relates to colored woods manufactured by impregnating woods with reactive coloring solutions and with dye solutions and synthetic resins and color coatings. The present specification clearly points out the disadvantages of prior art staining systems, such as Matsushita, and provides for a unique coloring system that allows substances to be applied to the wood that react in situ resulting in automatic coloring of the substrate because of the reaction. Claim 1 does not relate to coloring the substrate by applying a dye or a synthetic resin or coloring solutions. Matsushita thus teaches away from the claimed invention and cannot anticipate claim 1.

The absence from prior art reference any claimed element negates anticipation. Kloster Speedsteel AB v. Crucible, Inc., 230 USPQ 81, 84 (Fed. Cir. 1986).

Claims 3-7, 9-10 and 30-36 are patentable under 35 U.S.C. 102(b) over Brown.

Regarding the dependant claims, the Examiner makes a blanket statement, on page 4 of Paper No. 33, that claims 3-7, 9-10, and 30-36 are "anticipated" by Brown. However, the Examiner has not provided any basis for the features in each of the identified claims to enable Applicant to adequately rebut the rejections. The burden lies on the Examiner to make a prima facie case for rejection of the identified claims and the Examiner has failed in this case.

Attention is kindly drawn to the Federal Circuit's dictum:

**The examiner cannot sit mum, leaving the applicant to shoot arrows into the dark hoping to somehow hit a secret objection harbored by the examiner. The 'prima facie case' notion ... was intended to leave no doubt among examiners that they must state clearly and specifically any objections (the prima facie case) to patentability, and give the applicant fair opportunity to meet those objections ... the concept serves to level the playing field and reduces the likelihood of administrative arbitrariness.**

In re Oetiker, 25 USPQ2d 1443, 1447 (Fed. Cir. 1992) (Plager, J., concurring); see In re Piasecki, 233, USPQ 785, 788 (Fed. Cir. 1984) (emphasis added).

Claim 30 describes a kit for treating and coloring a wood substrate, comprising a first component aqueous solution of oxidizable metal salt preparation for a first application to the wood substrate, and a second component aqueous solution of oxygen source preparation for a sequential application to the wood substrate, the aqueous solution preparations being adapted to sequentially penetrate the wood substrate when sequentially applied, and both aqueous solution preparations when applied sequentially in effective amounts, being adapted to react with each other within the wood substrate to impart physical color characteristic to the wood substrate.

Brown does not dye wood, but rather dyes hair, which has nothing to do with dyeing wood. Moreover, Brown has an intermediate step of contacting hair with an organic solution and rinsing or shampooing the hair, and then bleaching the hair with hydrogen peroxide to obtain a lighter color. The hydrogen peroxide in Brown leads away from the present invention, because the hydrogen peroxide does not fix the metal salts in place. Nor is there anything in Brown which would suggest that Brown be used with wood.

The dependent claims add further unique features to claim 30, and each is patentable over Brown.

The office action is silent as to the basis for the rejection of each of the dependent claims since there is no showing as to where in Brown there is anticipation for each of the claimed features. See In re Oetiker, supra. Besides, the Examiner concedes in paper # 36 that applicant has pointed out the differences between the claims and the references, which suffices to overcome any anticipation rejection of the claimed features.

Claim 3 adds to claim 30 that the oxygen source is a peroxide and both formulations are aqueous solutions.

Claim 4 adds to claim 30 that the metal salt is selected from the group consisting of salts of iron, silver, zinc, cerium, copper, magnesium, molybdenum, nickel, tin, chromium, aluminum,

barium, calcium, sodium, potassium, and titanium, and combinations.

Claim 5 adds to claim 30 that the metal salt is selected from the group consisting of salts of aluminum, antimony, beryllium, bismuth, cadmium, chromium, cobalt, copper, gold, iridium, lead, magnesium, manganese, mercury, molybdenum, nickel, niobium, osmium, platinum, plutonium, potassium, rhodium, selenium, silicon, silver, sodium, tantalum, thorium, tin, titanium, tungsten, uranium, vanadium, and zinc, and combinations.

Claim 6 adds to claim 30 that the metal salt is selected from the group consisting of sulfates, chlorides, perchlorates, acetates, nitrates, permanganates, thiosulfates, and oxides, and combinations.

Claim 7 adds to claim 30 that the metal salt is selected from the group consisting of silver sulfate, silver perchlorate, silver nitrate, silver sulfite, iron (II) chloride, zinc perchlorate, iron (II) perchlorate, iron (II) sulfite, copper acetate, sodium thiosulfate, magnesium thiosulfate, potassium thiosulfate, potassium nitrate, potassium permanganate, copper nitrate, copper II carbonate dihydroxide, copper sulfate, titanium III sulfate, magnesium nitrate, cerium (III) perchlorate, and cerium nitrate, and combinations.

Claim 9 adds to claim 30 that the oxygen source is a peroxide.

Claim 10 adds to claim 30 that the oxygen source is selected from the group consisting of hydrogen peroxide, sodium peroxide, zinc peroxide, calcium peroxide, barium peroxide, and lithium peroxide, and combinations.

Claim 30 describes a kit for coloring a wood substrate, comprising a metal salt preparation, and an oxygen source preparation, the preparations being adapted to penetrate the substrate when applied, and both preparations, when applied sequentially in effective amounts, being adapted to react with each other to impart a fixed physical characteristic to the substrate.

Claim 31 adds to claim 30 that the metal salt preparation and/or the oxygen source preparation further comprises an additive selected from the group consisting of thickener, alcohol, emulsifier, coloring agent, pigment, dye, bleach, sealer, finishing agent, tint, acrylic finish, latex

finish, polyurethane, alcohol, gelling agent, tableting agent, surfactant, buffer, citric acid, tannic acid, acetic acid, other acid, color, salt, stabilizer, antimicrobial, antifungal, insecticide, insect repellent, ultraviolet protectant, and fire retardant, and combinations.

Claim 32 adds to claim 30 that the metal salt preparation is an aqueous solution comprising between about 0.001% and about 20% (w/v) metal salt.

Claim 33 adds to claim 30 that the oxygen source preparation is an aqueous solution comprising between about 0.1% and about 50% (w/v) peroxide.

Claim 34 adds to claim 30 that the metal salt preparation is an aqueous solution comprising between about 0.025 % and about 8% (w/v) metal salt.

Claim 35 adds to claim 30 that the oxygen source preparation is an aqueous solution comprising between about 0.3% and about 15% peroxide.

Claim 36 adds to claim 30 that the preparations are concentrates suitable for dilution by a user.

Brown, from an unrelated art, provides for dyeing hair to promote melanogenesis in hair, which has nothing to do with solid wood substrate coloring. Brown defines dyeing the hair with intermittent intervals to a dark color and then treating with hydrogen peroxide to obtain the desired color. That is contrary to the claimed in situ reaction of the mineral salts and hydrogen peroxide within the wood substrate being treated.

Thus, Brown does not teach nor suggest the claimed invention and therefore cannot anticipate the claims.

Claims 3-10 and 30-36 are patentable under 35 U.S.C. 102(b) over Tennigkeit.

Regarding the dependant claims, the Examiner makes a blanket statement, on pages 4-5 of Paper No. 33, that claims 3-10, and 30-36 are "anticipated" by Tennigkeit. However, the Examiner has not provided any basis for the features in each of the identified claims to enable Applicant to adequately rebut the rejection. The burden lies on the Examiner to make a prima

facie case for rejection of the identified claims and the Examiner has failed in this case.

Attention is kindly drawn to the Federal Circuit's dictum:

**The examiner cannot sit mum, leaving the applicant to shoot arrows into the dark hoping to somehow hit a secret objection harbored by the examiner. The 'prima facie case' notion ... was intended to leave no doubt among examiners that they must state clearly and specifically any objections (the prima facie case) to patentability, and give the applicant fair opportunity to meet those objections ... the concept serves to level the playing field and reduces the likelihood of administrative arbitrariness.**

In re Oetiker, 25 USPQ2d 1443, 1447 (Fed. Cir. 1992) (Plager, J., concurring); see In re Piasecki, 233, USPQ 785, 788 (Fed. Cir. 1984) (emphasis added).

Claims 3-10 and 30-36 have been described earlier.

The office action is silent as to the basis for the rejection of each of the dependent claims since there is no showing as to where in Brown and in Tennigkeit there is anticipation for each of the claimed features. See In re Oetiker, supra. Besides, the Examiner concedes in paper # 36 that applicant has pointed out the differences between the claims and the references, which suffices to overcome any anticipation rejection of the claimed features.

Like Brown, Tennigkeit relates to dyeing hair with an oxidation dye mixed with an oxidizing agent and a catalyst. However, nothing in the reference teaches, suggests or inherently provides for coloring a wood substrate in which substances are applied to the substrate and react in situ to provide the coloring which has nothing to do with pre-made dyes being applied to hair. Thus, the reference leads away from the claimed invention.

"To establish inherency, the extrinsic evidence 'must make it clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.'" In re Robertson, 48 USPQ2d 1949, 1951 (Fed. Cir. 1999) quoting from Continental Can Co. v. Monsanto Co., 20 USPQ2d 1746, 1749 (Fed. Cir. 1991).

Claims 1, 3-6, 9-10, 30, and 32-36 are patentable under 35 U.S.C. 102(b) over SU '297 (Light).

Regarding the dependant claims, the Examiner makes a blanket statement, on page 5 of Paper No. 33, that claims 1, 3-6, 9-10, 30 and 32-36 are "anticipated" by Light. However, the Examiner has not provided any basis for the features in each of the identified claims to enable Applicant to adequately rebut the rejections. The burden lies on the Examiner to make a prima facie case for rejection of the identified claims and the Examiner has failed in this case.

Attention is kindly drawn to the Federal Circuit's dictum:

**The examiner cannot sit mum, leaving the applicant to shoot arrows into the dark hoping to somehow hit a secret objection harbored by the examiner. The 'prima facie case' notion ... was intended to leave no doubt among examiners that they must state clearly and specifically any objections (the prima facie case) to patentability, and give the applicant fair opportunity to meet those objections ... the concept serves to level the playing field and reduces the likelihood of administrative arbitrariness.**

In re Oetiker, 25 USPQ2d 1443, 1447 (Fed. Cir. 1992) (Plager, J., concurring); see In re Piasecki, 233, USPQ 785, 788 (Fed. Cir. 1984) (emphasis added).

Claim 1 describes a kit for imparting a pre-determined color to a solid wood substrate, comprising a first component of an aqueous solution of a mineral salt, and a second component of an aqueous solution of a peroxide, the mineral salt and peroxide solutions being capable, when applied sequentially in effective amounts to the wood substrate, of reacting with each other in the presence of the wood substrate to impart the color to the substrate.

Claims 3-6, 9-10, 30, and 32-36 have been described earlier.

The office action is silent as to the basis for the rejection of each of the dependent claims since there is no showing as to where in Light there is anticipation for each of the claimed features. See In re Oetiker, supra. Besides, the Examiner concedes in paper # 36 that applicant has pointed out the differences between the claims and the references, which suffices to overcome any anticipation rejection of the claimed features.

Light has nothing to do with the present invention because Light is a process for de-canning goatskin, followed by a pickling and re-canning or final canning, followed by neutralization and a combined dying and tallowing. Nothing in Light would refer to wood, and

the use of the multiple steps in Light would lead away from the present invention. The complexity of Light would lead one away from the present invention. Moreover, there is nothing in the multiple step process of treating leather that would suggest a dying of wood in a two-step process.

Light relates to leather glove production by tanning in a combined hydrogen peroxide-sodium hydroxide solution and then treating with aluminum slats and dyeing. The reference teaching seeks to solve the problem of repeated tanning and pickling of leather rather than having anything to do with color preservation as uniquely provided by the present invention.

"Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. Continental Can Co. v. Monsanto Co., 20 USPQ2d 1746, 1749 (Fed. Cir. 1991).

Claims 3-7, 30, 31, and 36 are patentable under 35 U.S.C. 102(b) over Yantai.

Regarding the dependant claims, the Examiner makes a blanket statement, on page 5 of Paper No. 33, that claims 3-7, 30, 31 and 36 are "anticipated" by Yantai. However, the Examiner has not provided any basis for the features in each of the identified claims to enable Applicant to adequately rebut the rejections. The burden lies on the Examiner to make a prima facie case for rejection of the identified claims and the Examiner has failed in this case.

Attention is kindly drawn to the Federal Circuit's dictum:

**The examiner cannot sit mum, leaving the applicant to shoot arrows into the dark hoping to somehow hit a secret objection harbored by the examiner. The 'prima facie case' notion ... was intended to leave no doubt among examiners that they must state clearly and specifically any objections (the prima facie case) to patentability, and give the applicant fair opportunity to meet those objections ... the concept serves to level the playing field and reduces the likelihood of administrative arbitrariness.**

In re Oetiker, 25 USPQ2d 1443, 1447 (Fed. Cir. 1992) (Plager, J., concurring); see In re Piasecki, 233, USPQ 785, 788 (Fed. Cir. 1984) (emphasis added).

Claims 3-7, 30, 31, and 36 have been described earlier.

The office action is silent as to the basis for the rejection of each of the dependent claims since there is no showing as to where in Yantai there is anticipation for each of the claimed features. See In re Oetiker, supra. Besides, the Examiner concedes in paper # 36 that applicant has pointed out the differences between the claims and the references, which suffices to overcome any anticipation rejection of the claimed features.

Yantai relates to treatment of marble to form glazed surfaces and thereafter etching and exposing the treated surface to make black markings of the decorations. That teaching has nothing to do with wood substrates and would in fact lead away from the present invention since there is not teaching or suggestion of an in situ reaction of two solutions to give an -end-result of substrate collation.

Claims 2-8, 9-10, 20-22, 30-34, and 36 are patentable under 35 U.S.C. 102(b) over Dombay.

Regarding the dependant claims, the Examiner makes a blanket statement, on page 6 of Paper No. 33, that claims 2-8, 9-10, 20-22, 30-34, and 36 are "anticipated" by Dombay. However, the Examiner has not provided any basis for the features in each of the identified claims to enable Applicant to adequately rebut the rejections. The burden lies on the Examiner to make a prima facie case for rejection of the identified claims and the Examiner has failed in this case. Attention is kindly drawn to the Federal Circuit's dictum:

**The examiner cannot sit mum, leaving the applicant to shoot arrows into the dark hoping to somehow hit a secret objection harbored by the examiner. The 'prima facie case' notion ... was intended to leave no doubt among examiners that they must state clearly and specifically any objections (the prima facie case) to patentability, and give the applicant fair opportunity to meet those objections ... the concept serves to level the playing field and reduces the likelihood of administrative arbitrariness.**

In re Oetiker, 25 USPQ2d 1443, 1447 (Fed. Cir. 1992) (Plager, J., concurring); see In re Piasecki, 233, USPQ 785, 788 (Fed. Cir. 1984) (emphasis added).

Claims 2-7, 9-10, and 30-34, and 36 have been described earlier.

Claim 8 adds to claim 30 that the metal salt is selected from the group consisting of



molybdenum (VI) oxide, zinc sulfate, copper (II) chloride, nickel perchlorate, nickel sulfate, copper (II) perchlorate, tin (II) sulfate, tin (I) chloride, chromium (III) sulfate, aluminum sulfate, cerium (III) perchlorate, zinc perchlorate, titanium hydride, chromium (III) perchlorate, zinc powder, manganese (II) chloride, aluminum chloride, titanium (IV) chloride, silver chloride, and titanium (II) sulfate, and combinations.

Claim 20 adds to claim 2 the step of drying the substrate between the two steps.

Claim 21 adds to claim 2 that the preparations are aqueous solutions and are applied between the freezing point and boiling point of the solutions under the process conditions of the method.

Claim 22 adds to claim 2 applying a sealing coat over the substrate surface.

The office action is silent as to the basis for the rejection of each of the dependent claims since there is no showing as to where in Dombay there is anticipation for each of the claimed features. See In re Oetiker, supra. Besides, the Examiner concedes in paper # 36 that applicant has pointed out the differences between the claims and the references, which suffices to overcome any anticipation rejection of the claimed features.

Dombay merely coats wood with an oxidizing agent to lighten the wood. Dombay uses ammonium persulfate, and cupric sulfate as accelerants in concentrated hydrochloric acid with a methylated spirit, and an organic solvent teepol. In some cases Dombay treats some woods with an A solution to produce a darkening effect, and some woods with a B solution to produce a lightening effect. Whatever the result of Dombay, it is clear that Dombay does not teach the present invention as specifically pointed out in the claims.

Dombay relates to wood bleaching in which the reference mandates the use of methylated spirit, which the present invention particularly avoids. The present specification describes the ill-effects of prior art procedures that mandate alcohol based substances which harm the environment. In fact, Example 4, relied on by the Examiner, provides for 150 ml of methylated spirit. Potassium permanganate and cupric sulphate are used as bleaching accelerants in the one-

step Dombay bleaching process. Acetic acid is used to stop the bleaching.

Nothing in the entire reference teaches or suggests the unique kit that has an aqueous solution of a mineral salt and an aqueous solution of a peroxide, with the mineral salt solution being applied prior to the peroxide solution and the in situ reaction of the applied substances with the substrate.

Claims 2-10, 21, 30, 31, and 36 are patentable under 35 U.S.C. 102(b) over Bures.

Regarding the dependant claims, the Examiner makes a blanket statement, on page 7 of Paper No. 33, that claims 2-10, 21, 30, 31, and 36 are "anticipated" by Bures. However, the Examiner has not provided any basis for the features in each of the identified claims to enable Applicant to adequately rebut the rejections. The burden lies on the Examiner to make a prima facie case for rejection of the identified claims and the Examiner has failed in this case.

Attention is kindly drawn to the Federal Circuit's dictum:

**The examiner cannot sit mum, leaving the applicant to shoot arrows into the dark hoping to somehow hit a secret objection harbored by the examiner. The 'prima facie case' notion ... was intended to leave no doubt among examiners that they must state clearly and specifically any objections (the prima facie case) to patentability, and give the applicant fair opportunity to meet those objections ... the concept serves to level the playing field and reduces the likelihood of administrative arbitrariness.**

*In re Oetiker*, 25 USPQ2d 1443, 1447 (Fed. Cir. 1992) (Plager, J., concurring); see *In re Piasecki*, 233, USPQ 785, 788 (Fed. Cir. 1984) (emphasis added).

Claims 2-10, 21, 30, 31, and 36 have been described earlier.

The office action is silent as to the basis for the rejection of each of the dependent claims since there is no showing as to where in Bures there is anticipation for each of the claimed features. See *In re Oetiker*, supra. Besides, the Examiner concedes in paper # 36 that applicant has pointed out the differences between the claims and the references, which suffices to overcome any anticipation rejection of the claimed features.

Bures relates to a three step process of treating woods with metal salts, oxidants, dyes and

permeation agents. However, the reference does not teach nor suggest a kit for treating and coloring a wood substrate, comprising a first component aqueous solution of oxidizable metal salt preparation for a first application to the wood substrate, and a second component aqueous solution of oxygen source preparation for a sequential application to the wood substrate.

Bures has nothing to do with the aqueous solution preparations being adapted to sequentially penetrate the wood substrate when sequentially applied, and both aqueous solution preparations when applied sequentially in effective amounts, being adapted to react with each other within the wood substrate to impart physical color characteristic to the wood substrate.

Since the cited reference does not disclose all the elements of the present invention, the reference cannot anticipate the present invention. Lacking an element of the claims, the reference cannot anticipate the invention. Carmen Indus., Inc. v. Wahl, 220 USPQ 481, 485 (Fed. Cir. 1983).

Lacking the claimed elements, the references cannot anticipate the present claims.

**The present claims are patentable under 35 U.S.C. 103(a).**

In considering the patentability of the present invention, it is requested that the Board consider the invention as a whole, consider the scope and content of the prior art as a whole, consider the differences between the claims at issue and the prior art, and consider the level of ordinary skill in the art to which the invention pertains at the time the invention was made.

Graham v. John Deere Co., 148 USPQ 459, 467 (1966).

**THE INVENTION AS A WHOLE**

The invention considered as a whole is best described by the appended claims.

**PRIOR ART AS A WHOLE**

The prior art to which the invention pertains is typified by the references of record.

## **DIFFERENCES BETWEEN THE INVENTION AND THE PRIOR ART**

Each of the present claims defines unique features and each is individually patentable over the prior art.

The test in reviewing rejections under 35 U.S.C. 103 in which the examiner has relied on teachings of several references, is whether references, viewed individually and collectively, would have suggested claimed invention to a person possessing ordinary skill in the art, and citing references which merely indicate that isolated elements and/or features recited in the claims are known is not a sufficient basis for concluding that combination of the claimed elements would have been obvious. *Ex parte Hiyamizu*, 10 USPQ2d 1393-1395 (Board of Patent Appeals and Inter., 1988); *In re Kaslow*, 217 USPQ 1089 (Fed. Cir. 1983); *In re Deminski*, 230 USPQ 313 (Fed. Cir. 1986).

Claims 2-8, 9-10, 20-22, and 30-36, are patentable under 35 U.S.C. 103(a) over Dombay.

Regarding the dependant claims, the Examiner makes a blanket statement, on page 7 of Paper No. 33, that claims 2-8, 9-10, 20-22, and 30-36 “would have been obvious” from Dombay to “formulate a kit which comprises a first composition which contains water and a metal salt in the claimed amounts, and a second composition which contains water and hydrogen peroxide in the claimed amounts, wherein each composition is sequentially applied to wood to color the wood, because such kits fall within the scope of those as taught by Dombay.” However, the Examiner has not provided any basis for the features in each of the identified claims to enable Applicant to adequately rebut the rejections. The burden lies on the Examiner to make a prima facie case for rejection of the identified claims and the Examiner has failed in this case.

Attention is kindly drawn to the Federal Circuit's dictum:

**The examiner cannot sit mum, leaving the applicant to shoot arrows into the dark hoping to somehow hit a secret objection harbored by the examiner. The 'prima**

**facie case' notion ... was intended to leave no doubt among examiners that they must state clearly and specifically any objections (the prima facie case) to patentability, and give the applicant fair opportunity to meet those objections ... the concept serves to level the playing field and reduces the likelihood of administrative arbitrariness.**

In re Oetiker, 25 USPQ2d 1443, 1447 (Fed. Cir. 1992) (Plager, J., concurring); see In re Piasecki, 233, USPQ 785, 788 (Fed. Cir. 1984) (emphasis added).

Claim 2 defines a method for treating and coloring a wood substrate with the kit of claim 30 comprising the steps of contacting a substrate with a formulation comprising a metal salt, and allowing an effective amount of the formulation to penetrate the substrate, and sequentially but without regard to order; contacting the substrate with a formulation comprising an oxygen source, and allowing an effective amount of the formulation to penetrate the substrate; such that the two formulations react with each other in contact with the substrate to impart a stable change to the characteristics of the substrate.

Claim 3 adds to claim 30 that the oxygen source is a peroxide and both formulations are aqueous solutions.

Claim 4 adds to claim 30 that the metal salt is selected from the group consisting of salts of iron, silver, zinc, cerium, copper, magnesium, molybdenum, nickel, tin, chromium, aluminum, barium, calcium, sodium, potassium, and titanium, and combinations.

Claim 5 adds to claim 30 that the metal salt is selected from the group consisting of salts of aluminum, antimony, beryllium, bismuth, cadmium, chromium, cobalt, copper, gold, iridium, lead, magnesium, manganese, mercury, molybdenum, nickel, niobium, osmium, platinum, plutonium, potassium, rhodium, selenium, silicon, silver, sodium, tantalum, thorium, tin, titanium, tungsten, uranium, vanadium, and zinc, and combinations.

Claim 6 adds to claim 30 that the metal salt is selected from the group consisting of sulfates, chlorides, perchlorates, acetates, nitrates, permanganates, thiosulfates, and oxides, and combinations.

Claim 7 adds to claim 30 that the metal salt is selected from the group consisting of silver

sulfate, silver perchlorate, silver nitrate, silver sulfate, iron (II) chloride, zinc perchlorate, iron (II) perchlorate, iron (II) sulfate, copper acetate, sodium thiosulfate, magnesium thiosulfate, potassium thiosulfate, potassium nitrate, potassium permanganate, copper nitrate, copper II carbonate dihydroxide, copper sulfate, titanium III sulfate, magnesium nitrate, cerium (III) perchlorate, and cerium nitrate, and combinations.

Claim 8 adds to claim 30 that the metal salt is selected from the group consisting of molybdenum (VI) oxide, zinc sulfate, copper (II) chloride, nickel perchlorate, nickel sulfate, copper (II) perchlorate, tin (II) sulfate, tin (I) chloride, chromium (III) sulfate, aluminum sulfate, cerium (III) perchlorate, zinc perchlorate, titanium hydride, chromium (III) perchlorate, zinc powder, manganese (II) chloride, aluminum chloride, titanium (IV) chloride, silver chloride, and titanium (II) sulfate, and combinations.

Claim 9 adds to claim 30 that the oxygen source is a peroxide.

Claim 10 adds to claim 30 that the oxygen source is selected from the group consisting of hydrogen peroxide, sodium peroxide, zinc peroxide, calcium peroxide, barium peroxide, and lithium peroxide, and combinations.

Claim 20 adds to claim 2 the step of drying the substrate between the two steps.

Claim 21 adds to claim 2 that the preparations are aqueous solutions and are applied between the freezing point and boiling point of the solutions under the process conditions of the method.

Claim 22 adds to claim 2 applying a sealing coat over the substrate surface.

Claim 30 describes a kit for coloring a wood substrate, comprising a metal salt preparation, and an oxygen source preparation, the preparations being adapted to penetrate the substrate when applied, and both preparations, when applied sequentially in effective amounts, being adapted to react with each other to impart a fixed physical characteristic to the substrate.

Claim 31 adds to claim 30 that the metal salt preparation and/or the oxygen source preparation further comprises an additive selected from the group consisting of thickener, alcohol,

emulsifier, coloring agent, pigment, dye, bleach, sealer, finishing agent, tint, acrylic finish, latex finish, polyurethane, alcohol, gelling agent, tableting agent, surfactant, buffer, citric acid, tannic acid, acetic acid, other acid, color, salt, stabilizer, antimicrobial, antifungal, insecticide, insect repellent, ultraviolet protectant, and fire retardant, and combinations.

Claim 32 adds to claim 30 that the metal salt preparation is an aqueous solution comprising between about 0.001% and about 20% (w/v) metal salt.

Claim 33 adds to claim 30 that the oxygen source preparation is an aqueous solution comprising between about 0.1% and about 50% (w/v) peroxide.

Claim 34 adds to claim 30 that the metal salt preparation is an aqueous solution comprising between about 0.025 % and about 8% (w/v) metal salt.

Claim 35 adds to claim 30 that the oxygen source preparation is an aqueous solution comprising between about 0.3% and about 15% peroxide.

Claim 36 adds to claim 30 that the preparations are concentrates suitable for dilution by a user.

The office action is silent as to the basis for the rejection of each of the dependent claims since there is no showing as to where in Dombay there is basis for each of the claimed features. See In re Oetiker, supra. Besides, the Examiner concedes in paper # 36 that applicant has pointed out the differences between the claims and the references, which suffices to overcome any obviousness rejection of the claimed features.

As previously pointed out, Dombay merely coats wood with an oxidizing agent to lighten the wood. Dombay uses ammonium persulfate, and cupric sulfate as accelerants in concentrated hydrochloric acid with a methylated spirit, and an organic solvent teepol. Dombay treats some woods with an A solution to produce a darkening effect, and some woods with a B solution to produce a lightening effect. It is clear that Dombay does not teach the present invention as specifically pointed out in the claims.

Dombay relates to wood bleaching in which the reference mandates the use of methylated

spirit, which the present invention particularly avoids. The present specification describes the ill-effects of prior art procedures that mandate alcohol based substances which harm the environment. In fact, Example 4, relied on by the Examiner, provides for 150 ml of methylated spirit. Potassium permanganate and cupric sulphate are used as bleaching accelerants in the one-step Dombay bleaching process. Acetic acid is used to stop the bleaching.

That [the prior art] might incorporate elements which could be used in appellants' system does not render appellants' claims obvious when there is no suggestion of using these elements in substantially the same manner as appellants use them. In re Donovan, 184 USPQ 414, 421 (CCPA, 1975).

Claims 2-10, 20-22, 30-36 are patentable under 35 U.S.C. 103(a) over Bures

Regarding the dependant claims, the Examiner makes a blanket statement, on page 8 of Paper No. 33, that claims 2-10, 20-22, 30-36 "would have been obvious" from Bures to "add a claimed oxygen sources and metal salts to Bures aqueous compositions in the claimed amounts because Bures teaches such amounts as suitable for the patentee's wood coloring compositions." However, the Examiner has not provided any basis for the features in each of the identified claims to enable Applicant to adequately rebut the rejections. The burden lies on the Examiner to make a prima facie case for rejection of the identified claims and the Examiner has failed in this case.

Attention is kindly drawn to the Federal Circuit's dictum:

**The examiner cannot sit mum, leaving the applicant to shoot arrows into the dark hoping to somehow hit a secret objection harbored by the examiner. The 'prima facie case' notion ... was intended to leave no doubt among examiners that they must state clearly and specifically any objections (the prima facie case) to patentability, and give the applicant fair opportunity to meet those objections ... the concept serves to level the playing field and reduces the likelihood of administrative arbitrariness.**

In re Oetiker, 25 USPQ2d 1443, 1447 (Fed. Cir. 1992) (Plager, J., concurring); see In re Piasecki, 233, USPQ 785, 788 (Fed. Cir. 1984) (emphasis added).

Claims 2-10, 20-22, and 30-36 have been described earlier.



The office action is silent as to the basis for the rejection of each of the dependent claims since there is no showing as to where in Bures there is basis for each of the claimed features. See In re Oetiker, supra. Besides, the Examiner concedes in paper # 36 that applicant has pointed out the differences between the claims and the references, which suffices to overcome any obviousness rejection of the claimed features.

As previously stated, Bures relates to a three step process of treating woods with metal salts, oxidants, dyes and permeation agents. However, the reference does not teach nor suggest a kit for treating and coloring a wood substrate, comprising a first component aqueous solution of oxidizable metal salt preparation for a first application to the wood substrate, and a second component aqueous solution of oxygen source preparation for a sequential application to the wood substrate.

Like each of the other references, Bures too expressly intends to impart a stabilized color to dark and medium colored woods by utilizing hypochlorite, persulphate and peroxide compounds. The use of mineral salt ions specifically Iron, Zinc or Silver is not employed or mentioned. In fact, the reference relies on the exclusive use of hypochlorite, persulphate and peroxide compounds to bleach wood.

Contrastingly, the claimed process is expressly concerned with darkening the color of the top-most layer of wood cellulose and other substrates by transitioning water soluble mineral ions into oxides within the top-most layer of the substrate. The process bonds the transitioned minerals to the cellulose fibers and creates a more or less stable color which may slightly lighten or darken over time.

In fact, none of the references teach or suggest the claimed two step in situ treatment with the unique kit defined in the present claims. The present invention uniquely provides treatment of all substrates including light colored wood and is exclusively a two part process.

"To establish inherency, the extrinsic evidence 'must make it clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would

be so recognized by persons of ordinary skill.'" In re Robertson, 48 USPQ2d 1949, 1951 (Fed. Cir. 1999) quoting from Continental Can Co. v. Monsanto Co., 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. Id. 20 USPQ2d at 1749.

The invention provides an aqueous solution of a mineral salt thereby providing water soluble ions of mineral salts which are applied to a suitable substrate and allowed to briefly dry. In a second step the water soluble mineral salts transition into insoluble mineral oxide compounds which form inside and around the cellulose fibers. The agents used to transition the mineral salt ions into insoluble oxide compounds include dilute hydrogen peroxide solutions, to prevent harm to the environment, and other dilute strength agents such as sodium peroxide and sodium hydroxide. Again, stronger solutions pose a greater threat to the environment and user.

The present process is expressly useful in enhancing the natural nuances of a particular piece of wood, thereby giving it a more natural color than a conventional stain. The process enhances the variations of color within a given species of wood, therefore differing from the prior art, all of which aim to provide bleaching for more uniform color of wood or of hair, which is not relevant.

The commercial viability of the present process relies on enhancing the naturally occurring qualities of a specific wood particularly lighter colored species such a Pine, Larch, Poplar, Alder, Maple, Fur, Ash, Bamboo (a grass), Hackberry, Black Willow, Oak, Birch, and others. All of those are considered colored woods, many of which are rapidly grown, sustainable harvestable species.

"The inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown. In re Spormann and Heinke, 150 USPQ 449, 452 (CCPA 1966). "... if the Patent Office wishes to rely on what 'Those familiar with [invention] would know,' it must produce some

reference showing what such knowledge consists of." **Id.**

The light fastness is considerably better than prior art dyes (specifically aniline dyes) used to color wood and other substrates. The primary commercial use for the invention is to impart a range of colors (earth tones primarily) to light and medium colored woods and to use as an alternative to conventional staining products which may contain hazardous VOC's or other hazardous chemical compounds. Also, conventional dyes and colorants for wood does not enhance the natural qualities of the wood or other substrate as does the Auger Mineral Stain Process.

Minerals used in the present invention expressly create color within the wood or substrate. Minerals utilized alone or in combination are: Iron, Zinc and Silver salts, specifically Iron I Chloride, Sulfate and Perchlorate; Zinc Perchlorate, Silver Perchlorate and Silver Nitrate, among others.

No potassium persulphate, sodium persulfate, ammonium persulfate, sodium carbonate, acetic acid, glacial acetic acid, potassium permanganate, cupric ions or ammonia are used in the claimed process. Thus, the claimed invention always imparts the substrate with an alkaline pH.

See In re Meng, 181 USPQ 94, 97 (CCPA 1974), wherein the Court held:

"Of course the invention seems simple, after the fact. But simplicity, particularly in an old and crowded art, may argue for rather than against patentability. In re Sporck, 133 USPQ 360 (CCPA 1962). Progress in the crowded arts, usually made in small increments, is as important as it is in arts at the pioneer stage. In re Hummer, 113 USPQ 66 (CCPA 1957). The Constitution envisages and seeks progress in the 'useful arts,' not just those more esoteric or scientific."

Proper surface preparation consistent with any preparatory procedure used to prepare wood for finishing allows for adequate penetration of the mineral salt solution. Additionally an anionic surfactant may be added to the mineral salt solution to aid in the penetration of the mineral salt solution, this is especially useful for industrial and manufacturing situations where dust, grease and other debris may be present and form surface tension prohibiting the mineral salt solution (A) from penetrating the substrate.

"The mere fact that a certain thing may result from a given set of circumstances is not sufficient [to establish inherency]." *In re Rijckaert*, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993), quoting from *In re Oelrich*, 212 USPQ 323, 326 (CCPA 1981). "Such a retrospective view of inherency is not a substitute for some teaching or suggestion supporting an obviousness rejection." *Rijckaert*, *id.*, quoting from *In re Newell*, 13 USPQ2d 1248, 1250 (Fed. Cir. 1989).

Contrary to the prior art, and according to the invention, the solution is completely dry prior to the application of the (catalyst) solution. Also, contrary to the prior art, the present invention transitions the European Oak instantly through its process to the yellow color the prior art is attempting to avoid. By producing the yellow or "aged" color Auger allows woodworkers to match the tone of "aged" or "antique" wood thereby giving woodworkers the opportunity to make reproductions, restore or color wood articles in a manner consistent with the color expected from wood which has acquired an "aged" or "antique" appearance.

The Board, in *Ex parte Levengood*, 28 USPQ2d 1300, 1301 (Board of App. and Inter. 1993), observed:

"The only suggestion for the examiner's combination of the isolated teachings of the applied references improperly stems from appellant's disclosure and not from the applied prior art. *In re Ehrreich*, 200 USPQ 504 (CCPA 1979). At best, the examiner's comments regarding obviousness amount to an assertion that one of ordinary skill in the art would have been able to arrive at the appellant's invention because he had the necessary skills to carry out the requisite... steps. This is an inappropriate standard for obviousness."

The above is true for the present case.

Nothing in the references, either singly or in combination, teaches or suggests the claimed features. Therefore, the references cannot anticipate nor render obvious any of the claims.

#### **LEVEL OF ORDINARY SKILL IN THE ART**

A person having ordinary skill in the art is an artisan being taught the reference teachings.

A person having ordinary skill in the art is an artisan being taught the reference teachings.

### **SUMMARY**

Claims 1 and 31 are patentable under 35 U.S.C. 112, second paragraph.

Each of the present claims is patentable under 35 U.S.C. 102(b) over the prior art of record.

When considering the present invention as a whole and the prior art to which the invention pertains as a whole, when considering the differences between the present invention and the prior art, and when considering the level of ordinary skill in the art to which the invention pertains, it is clear that the invention would not have been obvious under 35 U.S.C. 103(a) to a person having ordinary skill in the art at the time the invention was made.

### **CONCLUSION**

The Examiner has failed to meet the burden required by MPEP 2183. Under 2183, after concluding, with proper evidence, that the claimed limitation is met by prior art element, the examiner must show that the prior art element is equivalent and must also demonstrate why it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute applicant's described structure, material, or acts for that described in the prior art reference. This is what is required to shift the burden to applicant to show that the element shown in the prior art is not an equivalent of the structure, material or acts disclosed in the application. MPEP 2183. The Examiner in this case has not met the burden required by MPEP 2183.

Reversal of the Examiner and allowance of all the claims are respectfully requested.

Respectfully,

A handwritten signature in black ink, appearing to read 'J. C. Wray', with a large, sweeping flourish extending from the bottom left of the signature.

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January 22, 2002



## APPENDIX

### **APPEALED CLAIMS:**

1. A kit for imparting a pre-determined color to a solid wood substrate, comprising:
  - (a) an aqueous solution of a first component consisting of a mineral salt and water as a first application on the solid wood substrate, and
  - (b) a second component comprising an aqueous solution of a peroxide as a sequential application on the solid wood substrate,effective amounts of the mineral salt and the peroxide solutions occurring as sequential applications on the substrate and colored layer on the substrate formed by the sequential applications reacting with each other in the presence of the substrate thereby imparting the color to the substrate.
2. A method for coloring a wood substrate with the kit of claim 30 comprising the steps of:
  - (a) contacting the wood substrate with the first component aqueous solution preparation comprising the oxidizable metal salt, and allowing an effective amount of the first component aqueous solution preparation to penetrate the wood substrate, and sequentially but without regard to order,
  - (b) contacting the wood substrate with the second component aqueous solution preparation comprising an oxygen source, and allowing an effective amount of the second component aqueous solution preparation to penetrate the wood substrate,
  - (c) reacting in situ within the wood substrate the first and the second component aqueous solution preparations with each other in contact with the wood substrate, and
  - (d) imparting a stable color change to the wood substrate.
3. The kit of claim 30, wherein the oxygen source is a peroxide and both preparations consisting essentially of aqueous solutions.
4. The kit of claim 30, wherein the metal salt is selected from the group consisting of

salts of iron, silver, zinc, cerium, copper, magnesium, molybdenum, nickel, tin, chromium, aluminum, barium, calcium, sodium, potassium, and titanium, and combinations thereof.

5. The kit of claim 30, wherein the metal salt is selected from the group consisting of salts of aluminum, antimony, beryllium, bismuth, cadmium, chromium, cobalt, copper, gold, iridium, lead, magnesium, manganese, mercury, molybdenum, nickel, niobium, osmium, platinum, plutonium, potassium, rhodium, selenium, silicon, silver, sodium, tantalum, thorium, tin, titanium, tungsten, uranium, vanadium, and zinc, and combinations thereof.

6. The kit of claim 30, wherein the metal salt is selected from the group consisting of sulfates, chlorides, perchlorates, acetates, nitrates, permanganates, thiosulfates, and oxides, and combinations thereof.

7. The kit of claim 30, wherein the metal salt is selected from the group consisting of silver sulfate, silver perchlorate, silver nitrate, iron (II) chloride, zinc perchlorate, iron (II) perchlorate, iron (II) sulfate, copper acetate, sodium thiosulfate, magnesium thiosulfate, potassium thiosulfate, potassium nitrate, potassium permanganate, copper nitrate, copper II carbonate dihydroxide, copper sulfate, titanium III sulfate, magnesium nitrate, cerium (III) perchlorate, and cerium nitrate, and combinations thereof.

8. The kit of claim 30, wherein the metal salt is selected from the group consisting of molybdenum (VI) oxide, zinc sulfate, copper (II) chloride, nickel perchlorate, nickel sulfate, copper (II) perchlorate, tin (II) sulfate, tin (I) chloride, chromium (III) sulfate, aluminum sulfate, cerium (III) perchlorate, zinc perchlorate, titanium hydride, chromium (III) perchlorate, manganese (II) chloride, aluminum chloride, titanium (IV) chloride, silver chloride, and titanium (II) sulfate, and combinations thereof.

9. The kit of claim 30, wherein the oxygen source is a peroxide.

10. The kit of claim 30, wherein the oxygen source is selected from the group consisting of hydrogen peroxide, sodium peroxide, zinc peroxide, calcium peroxide, barium peroxide, and lithium peroxide, and combinations thereof.



20. The method of claim 2, further comprising the step of drying the substrate between the two contacting steps.

21. The method of claim 2, wherein the aqueous solutions are applied between the freezing point and boiling point of the solutions under the process conditions of the method.

22. The method of claim 2, further comprising applying a sealing coat over a substrate surface.

30. A kit for coloring a wood substrate, comprising

(a) a first component aqueous solution of oxidizable metal salt preparation for a first application to the wood substrate, and

(b) a second component aqueous solution of oxygen source preparation for a sequential application to the wood substrate,

the aqueous solution preparations being adapted to sequentially penetrate the wood substrate when sequentially applied, and both aqueous solution preparations when applied sequentially in effective amounts, being adapted to react with each other within the wood substrate to impart physical color characteristic to the wood substrate.

31. The kit of claim 30, wherein the metal salt preparation and/or the oxygen source preparation further comprises an additive selected from the group consisting of thickener, emulsifier, coloring agent, pigment, dye, bleach, sealer, finishing agent, tint, acrylic finish, latex finish, polyurethane, alcohol, gelling agent, tableting agent, surfactant, buffer, citric acid, tannic acid, acetic acid, other acid, color, salt, stabilizer, antimicrobial, antifungal, insecticide, insect repellent, ultraviolet protectant, and fire retardant, and combinations.

32. The kit of claim 30, wherein the metal salt preparation is an aqueous solution comprising between about 0.001% and about 20% (w/v) metal salt.

33. The kit of claim 30, wherein the oxygen source preparation is an aqueous solution comprising between about 0.1% and about 50% (w/v) peroxide.

34. The kit of claim 30, wherein the metal salt preparation is an aqueous solution

comprising between about 0.025 % and about 8% (w/v) metal salt.

35. The kit of claim 30, wherein the oxygen source preparation is an aqueous solution comprising between about 0.3% and about 15% peroxide.

36. The kit of claim 30, wherein the preparations are concentrates suitable for dilution by a user.